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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PENDORF & CUTLIFF
5111 MEMORIAL HIGHWAY
TAMPA, FL 33634-7356

EXAMINER	
ANGELL, JON E	
ART UNIT	**PAPER NUMBER**
1635	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/787,559	KRAMER ET AL.	
	Examiner	Art Unit	
	Jon Eric Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-6,8-11,17,18,20 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-6,8-11,17,18,20 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Action is in response to the communication filed on 7/29/04. The correspondence address has been changed. The sequence listing and CRF filed 3/27/03 have been entered. The amendment filed 8/15/02 is acknowledged. The amendment has been entered. Claims 1, 7, 12-16, 19, 21-23 and 25-28 have been cancelled. Claims 2-6, 8-11, 17, 18, 20 and 24 are currently pending in the application and are addressed herein.

Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2-6, 8-11, 17, 18, 20 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The instant claims are drawn to an isolated nucleic acid encoding a protein that is functionally identical to a protein that occurs naturally in human keratinocytes wherein the protein has the sequence of SEQ ID NO: 1 or SEQ ID NO: 4, as well as: (1) as partial sequences

of SEQ ID NO: 1 or SEQ ID NO: 4 wherein the partial sequences are more than 8 nucleotides, (2) a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences. Therefore, the limitation of the claims create genus situations where the number of nucleic acids potentially comprises millions or more different species of nucleic acids encoding proteins functionally identical to pKe#122. For example, in a minimal way, Applicant has only disclosed the protein named pKe#122, which is encoded by SEQ ID No. 1 or SEQ ID No. 4. As written, the claims encompass nucleic acids that encode a protein that is functionally identical to pKe#122 and includes variants, derivatives and fragments of the disclosed sequences.

Furthermore, a close analysis of the claims reveals that the phrase "or a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences" indicates that the claims encompass nucleic acid sequences which merely hybridize to a nucleic acid sequences encoding a protein that is functionally identical to pKe#122. As such, the claims encompass nucleic acid sequences which hybridize to the sequences encoding the functionally identical protein, but which may not actually encode a functionally identical protein. Therefore, the claims encompass a genus of molecules that possibly comprises millions of different molecules. Applicant has express possession of only two nucleic acid species that encoding the functionally active protein (SEQ ID No. 1 and SEQ ID No. 4) in a genus which comprises possibly millions of different species.

The written description guidelines note regarding such genus/species situations that "Satisfactory disclosure of a 'representative number' depends on whether one of skill in the art would recognize that the applicant was in possession of the necessary common attributes or features of the elements possessed by the members of the genus in view of the species disclosed." (See: Federal Register: December 21, 1999 (Volume 64, Number 244), revised guidelines for written description.) Here, no common elements or attributes of the sequences

that are critical to any functionally identical molecule are disclosed. Additionally, the elements or attributes not critical for to any functionally identical molecules are not disclosed. Further, there is not any methodology presented to determine such common elements or attributes.

With regard to the written description, all of the claims encompass sequences different from those disclosed in the specific SEQ ID Nos. which include modifications permitted by the "functionally identical" language for which no written description is provided in the specification.

> It is noted that in Fiers v. Sugano (25 USPQ2d, 1601), the Fed. Cir. concluded that "...if inventor is unable to envision detailed chemical structure of DNA sequence coding for specific protein, as well as method of obtaining it, then conception is not achieved until reduction to practice has occurred, that is, until after gene has been isolated...conception of any chemical substance, requires definition of that substance other than by its functional utility."

In the instant application, only the sequences of the disclosed SEQ ID Nos. are described. Also, in Vas-Cath Inc. v. Mahurkar (19 USPQ2d 1111, CAFC 1991), it was concluded that:

> "...applicant must also convey, with reasonable clarity to those skilled in art, that applicant, as of filing date sought, was in possession of invention, with invention being, for purposes of "written description" inquiry, whatever is presently claimed."

In the application at the time of filing, there is no record or description which would demonstrate conception or written description of any nucleic acids encoding molecules functionally identical to pKe#122 other than SEQ ID NO:1 and SEQ ID NO:4.

Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988).

Wands states on page 1404,

> "Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

The nature of the invention

The instant claim is drawn to use of a sense or antisense oligonucleotide for the diagnostic and/or therapeutic treatment of dermatological diseases or for the cosmetic treatment in particular of the epidermis. Therefore the nature of the invention encompasses gene therapy, including antisense oligonucleotide therapy.

The breadth of the claims

The breadth of the claim is very broad. For instance, the claim encompasses a DNA or RNA oligonucleotide that is useful for the diagnosis and/or treatment of any dermatological disorder or that is useful for any cosmetic treatment in any species of animal.

The unpredictability of the art and the state of the prior art

At the time of filing the relevant prior art regarded gene therapy and antisense oligonucleotide gene therapy as highly unpredictable. With regard to oligonucleotides as therapeutic reagents, the bulk of the art indicates the difficulty in utilization of antisense therapies. Probst et al. (TIGs Vol. 12(8):290-291; 1996) notes,

> "The mechanism of antisense oligonucleotide action is poorly understood and relies primarily on speculation and, as recently described in Nature Medicine and Science, seems to have 'growing pains' due to the lack of knowledge regarding antisense action. Improper use of molecular terminology (ref omitted) will also lead to misunderstandings, as will incompletely analyzed cellular and molecular effects evoked by antisense oligonucleotides (page 90, column 1, third paragraph)".

Regarding gene delivery in vivo, Harris et al. (TIGs Vol. 12(10):400-405; 1996) stated that,

> "The major hurdle now is the poor efficiency of gene delivery in vivo with the gene transfer technology presently available, but we anticipate that this will be overcome by further modifications of viral vectors and the development of synthetic systems combining the best elements of a variety of vectors (page 405)".

The prior art also supports the unpredictable nature of the art. It is unpredictable which formulations, compounds and delivery modes will function in an in vivo setting. This unpredictability is evidenced in a report in Science (Vol. 269:1050-1055) which states that, "So far, there has been no unambiguous evidence that genetic treatment has produced therapeutic benefit (page 1050, column 1)".

There appears to be no prior art on the nucleic acid molecules encoding pKe#122, the pKe#122 protein itself, or on the function of the pKe#122 protein. There is no recognition in the prior art that pKe#122 is involved in any way in any dermatological disorder. Furthermore, there is no evidence in the prior art that oligonucleotides which hybridize to SEQ ID No. 1 or SEQ ID

No. 4 would be useful in diagnosing or treating any dermatological disorder or that the oligonucleotides would be useful for cosmetic treatment as the protein encoded by SEQ ID No. 1 and SEQ ID No. 4 (pKe#122) had not been associated with any dermatological disorder.

Working Examples and Guidance in the Specification

The specification has only one working examples, of oligonucleotides that hybridize to SEQ ID No. 1 or SEQ ID No. 7. The working example (Example 6 in the instant specification) is an experiment where cells were treated in vitro with antisense oligonucleotides. The treated cells displayed an altered morphology which allowed the applicants to conclude that "cells treated with pKe#122-specific antisense-oligonucleotides show an increased tendency toward differentiation (see page 20, first paragraph)." However, there are no working examples of in vivo use of the antisense oligonucleotides, the results of which are critical to determining the therapeutic effectiveness of the reagents. There are also no examples demonstrating the accuracy of the oligonucleotides in diagnosing any disease/disorder. There are no working examples or guidance in the specification on methods of using the oligonucleotides for cosmetic treatment. Therefore, it is unpredictable that the oligonucleotides could successfully be used to diagnose and/or treat any dermatological disorder, or that the oligonucleotide could be successfully used in cosmetic treatment.

Quantity of Experimentation

The quantity of experimentation required is extremely large since pKe#122 (the protein encoded by SEQ ID No. 1 and SEQ ID No. 4) has not been associated with any dermatological disorder. Therefore, it must first be determined if pKe#122 is associated with a dermatological disorder. If pKe#122 is not associated with any dermatological disorder, then the

oligonucleotides would not be useful in diagnosing and/or treating any dermatological disorder. Determining if pKe#122 is involved in dermatological disorders would require testing for the alteration of pKe#122 in every possible dermatological disorder. The alterations could include overexpression, loss of expression, or mutations that increase or decrease the activity of pKe#122. Once it was determined that pKe#122 was associated with a dermatological disorder, the efficacy of the oligonucleotide in treating the disorder would have to be tested, a process that includes in vitro experiments, testing in animals, and finally clinical studies in human subjects. This would require years of inventive effort, with each of the many intervening steps, upon effective reduction to practice, not providing any guarantee of success in the succeeding steps.

Level of the skill in the art

The level of the skill in the art is deemed to be high.

Conclusion

Considering the high degree of unpredictability of gene therapy recognized in the art, the breadth of the claims, the lack of working examples and guidance in the specification; and the high degree of skill required, it is concluded that the amount of experimentation required to perform the broadly claimed method is undue.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 2 and 3 are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention.

Claim 2 is drawn to an isolated nucleic acid encoding a protein that is functionally identical to a protein that occurs naturally in human keratinocytes wherein the protein has the sequence of SEQ ID NO: 1 or SEQ ID NO: 4, as well as: (1) partial sequences of SEQ ID NO: 1 or SEQ ID NO: 4 wherein the partial sequences are more than 8 nucleotides, (2) a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences. It is noted that the phrase "a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences" encompasses any nucleotide sequence (regardless of size) that hybridizes under the indicated conditions to any of the claimed nucleic acid sequences. Since the claim encompasses any nucleic acid sequence that would hybridize to SEQ ID NO:1 or 4 under "conventional stringent conditions", an oligonucleotide that is 6 nucleotides long and which is 100% identical to the target sequence would hybridize to the target sequence under the claimed conditions.

Random hexanucleotides were available for sale as early as 1997 (see 1997 Boehringer Mannheim Catalog, page 95). The hexanucleotide mix available comprised, "mixture of hexamer nucleotides of all possible sequences for random primed DNA labeling." Therefore, there existed within the hexanucleotide mix at least one nucleotide sequence that would be 100% identical one of the sequences encompassed by the claims which would necessarily hybridize wholly or in part with the target sequence under the claimed conditions. Claim 3 encompass the nucleotide sequence of claim 2 that is obtained from natural, synthetic or half-synthetic source. The hexamers for sale by Boehringer were synthetically synthesized.

5. Claims 2 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mierendorf et al. (U.S. patent 5,629,179).

As mentioned above, claim 2 is drawn to an isolated nucleic acid encoding a protein that is functionally identical to a protein that occurs naturally in human keratinocytes wherein the protein has the sequence of SEQ ID NO: 1 or SEQ ID NO: 4, as well as: (1) as partial sequences of SEQ ID NO: 1 or SEQ ID NO: 4 wherein the partial sequences are more than 8 nucleotides, (2) a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences. It is noted that the phrase "a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences" encompasses any nucleotide sequence (regardless of size) that hybridizes under the indicated conditions to any of the claimed nucleic acid sequences. Since the claim encompasses any nucleic acid sequence that would hybridize to SEQ ID NO:1 or 4 under "conventional stringent conditions", an oligonucleotide that is 8 nucleotides long and which is 100% identical to the target sequence would hybridize to the target sequence under the claimed conditions.

Mierendorf et al. teaches a method and kit for making a cDNA library wherein the kit comprises random octamer oligonucleotides over every possible sequence (see column 7, line 59-column 8, line 6). Mierendorf et al. teaches a kit comprising every possible octamer oligonucleotide. Therefore, the kit taught by Mierendorf et al. includes 8mer (i.e. octamer) oligonucleotides which would necessarily hybridize wholly or in part to SEQ ID No. 1 and SEQ ID No. 4 under the claimed conditions.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-6, 8-11, 17, 18, 20 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a New Matter rejection.**

37 CFR 1.118 (a) states that "No amendment shall introduce new matter into the disclosure of an application after the filing date of the application".

MPEP §2163.06 notes:

If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. In re Rasmussen, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

MPEP §2163.02 teaches that:

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application.

MPEP §2163.06 further notes:

When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure. (Emphasis added).

The claims have been amended to include the new limitations: "said partial sequence comprising more than 8 nucleotides", "under conventional stringent hybridization conditions", and "more than 8 and up to 25 nucleotides" (See claims 2, 5, 20).

It is noted that Applicants have not indicated where in the specification they believe support for the new limitations can be found. Applicants are asked to identify by specific page and line number where support for the indicate limitations can be found.

Looking to the specification for support, the Examiner has found support for only for oligonucleotides that are "at least 6, preferably 8 to 25 nucleotides" (see p. 3, paragraph [0008]), and "the term 'hybridized' relates to the procedures known the art under conventional, in particular also under highly stringent hybridization conditions" (see p. 3, paragraph [0009]). However, this disclosure is not proper basis for the claimed limitations as the specification does not specifically disclose "said partial sequence comprising more than 8 nucleotides", "under conventional stringent hybridization conditions", and "more than 8 and up to 25 nucleotides". Therefore, the new limitations are considered new matter.

To the extent that the claimed compositions and/or methods are not described in the instant disclosure, claims 2-6, 8-11, 17, 18, 20 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, since a disclosure cannot teach one to make or use something that has not been described.

Response to Arguments

Applicant's arguments filed 8/15/02 have been fully considered.

With respect to the rejection of claims under 35 USC 101 and the related rejection under 35 USC 112, 1st paragraph. The rejections have been withdrawn as the claims have been amended to eliminate the "use of" language from the claims. However, the amended claims are rejected for the reasons set forth herein.

With respect to the rejection of claims under 35 USC 112, 2nd paragraph, the amendment to the claims obviated the rejection. As such, the rejection is withdrawn.

With respect to Applicants arguments pertaining to the rejection of claims under 35 USC 112, 1st paragraph (Written Description), 35 USC 112, 1st paragraph (Enablement), and 35 USC 102(b), Applicants arguments have been fully considered, but are not persuasive.

Applicants traverse the rejection of claims under 35 USC 112, 1st paragraph (Written Description), and assert that the claims are limited only to nucleotide sequences that comprise at least 8 nucleotides or which hybridize under conventional hybridization conditions (see p. 7 of the response). Applicants also assert that since they were the first to disclose the pKe#122 gene and protein, they are "entitled to protection having at least this scope" (see p. 8).

In response, it is respectfully pointed out that the claims are not limited to nucleotide sequences comprising SEQ ID NO: 1 or SEQ ID NO: 4. The claims specifically claims (1) partial sequences of SEQ ID NO: 1 or SEQ ID NO: 4 wherein the partial sequences are more than 8 nucleotides and (2) a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences. As such the claims encompass any partial sequence of SEQ ID NO: 1 or 4 that is 8 nucleotides long (or more), and which

encodes a functionally identical pKe#122 protein; as well as ***any*** nucleotide sequence that hybridizes to any of the sequences encompassed by the claimed sequence—which encompasses sequences that hybridize to SEQ ID NO: 1 or SEQ ID NO: 4, but which could encode proteins that have completely different functions. Therefore, the claims are not limited to the extent that Applicants assert that they are, and as such, Applicants arguments are not persuasive.

With respect to the rejection of claims under 35 USC 112, 1st paragraph (Enablement), Applicants traverse the rejection and argue that the specification is addressed to one skilled in the art and indicate that the amount of additional experimentation required is not undue. Specifically, Applicants assert "the application provides sufficient guidance to the skilled artisan to conduct antisense therapy without undue burden and with a reasonable expectation of success.

In response, the Examiner disagrees that the one of skill in the art could practice the claimed method of treatment (including curing of disease) without performing undue additional experimentation. Specifically, the Probst, Harris and Science articles cited by the Examiner clearly indicate the highly unpredictable nature of antisense therapy. Since the specification has not provided guidance which would overcome the problems recognized in the art with respect to antisense therapy, one of skill in the art would be required to perform additional experimentation in order to be able to use the claimed method for treating/curing disease. Considering ALL of the indicated Wands factors as a whole, it is clear that the additional amount of experimentation required to practice the claimed invention for treating/curing disease is, in fact, undue.

Therefore, Applicants' arguments are not persuasive.

With respect to the rejection of claims under 35 USC 102(b), Applicants argue that the rejections have been overcome because the claims have been amended to be directed to oligonucleotides that are more than 8 nucleotides (see p. 12).

In response, as indicated above, it is respectfully pointed out that the claims are not limited to nucleotides that are more than 8 nucleotides. The claims specifically encompass a nucleotide sequence that hybridizes under conventional stringent conditions wholly or in part with one of the claimed sequences. As such the claims encompass any nucleic acid that hybridizes (under the claimed conditions) to the claimed sequences, regardless of size. Therefore, the claims are not limited to nucleotides that are more than 8 nucleotides long. Since the hexamers and octamers indicated in the rejections encompass oligonucleotides that are 100% identical to the target sequences, the indicated oligonucleotides would necessarily hybridize to the target sequences under the claimed conditions.

Therefore, Applicants' arguments are not persuasive.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Eric Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Mon-Fri, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached on 571-272-0760. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jon Eric Angell, Ph.D.
Art unit 1635

Anne-Marie Falk
ANNE-MARIE FALK, PH.D
PRIMARY EXAMINER